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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,846	03/15/2005	Sung-Muk Leem	123011-05031058	1810

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EXAMINER	
ZHANG, JUE	

ART UNIT	PAPER NUMBER
2892	

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/527,846	LEEM, SUNG-MUK	
	Examiner	Art Unit	
	Jue Zhang	2892	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03/15/2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03/15/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4, 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Ono (US Patent No. 5943002, hereinafter '002).

For claim 1, '002 teaches a battery pack (Fig. 2) equipped with a detachable rechargeable battery (6), to which charging solar cells (5) for collecting solar light and charging the rechargeable battery to a battery voltage of a certain level, wherein: a battery loading hole (9a) is formed in one side of a battery housing (1) in a horizontal direction to allow the rechargeable battery to be loaded therein (Fig. 2; col. 4 lines 57-67); and the rechargeable battery inserted through the battery loading hole (9a) and loaded in the battery housing (1) is fastened by a battery fastener (11, 22), and thus, is connected to power terminals in a contact manner (Fig. 2; col. 4 lines 57-67).

Claim 2, '002 teaches the limitations of claim 1, and further teaches that the rechargeable battery (6) is inserted into the battery loading hole of the battery housing (9a) integrated with the recharging circuit board (3), and thus, is connected to the power terminals in a contact manner (Fig. 1-2; col. 1 lines 60-65; col. 4 lines 57-67).

Claim 4, '002 teaches the limitations of claim 1, and further teaches that the charging solar cells (5) for collecting the solar light is integrally formed on only an upper surface of the battery housing (1)(Fig. 2).

For claim 6, '002 teaches a portable electronic device adopting a battery pack equipped with a detachable rechargeable battery (6)(Fig. 2), wherein: a battery loading hole (9a) is formed in one side of a battery housing (1) in a horizontal direction to allow the rechargeable battery to be inserted thereinto; and a battery pack, in which the rechargeable battery (6) inserted into the battery housing (1) through the battery loading hole (9a), and thus, loaded in the battery housing (1) is fastened by insertion and combination of a battery fastener (11, 22), and thus, is connected to power terminals (14) in a contact manner, is mounted on a device body (1) (Fig. 2; col. 1, lines 60-65; col. 4 lines 57-67).

Claim 7, '002 teaches the limitations of claim 6, and further teaches that the battery pack is constructed to be integrated with a device body (1)(Fig. 2)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ono ('002), in view of Jo et al. (US Patent No. 5,932,994, hereinafter '994).

Claim 3, '002 teaches the limitations of claim 1, and further teaches a stabilizing power circuit on the circuit board (col. 1, lines 60-65). '002 does not explicitly teach that when a Direct Current (DC) voltage from the charging solar cells is compared with a reference voltage by a Metal Oxide Semiconductor-Field Effect Transistor (MOS-FET), and the DC voltage corresponds to the battery voltage, the recharging circuit of the recharging circuit board stores and filters the DC voltage through an inductor and a capacitor, rectified the DC voltage into a battery voltage through a rectifying diode, and thus, quickly charges the rechargeable battery with the DC voltage from the charging solar cells; and when the DC voltage from the charging solar cells is oversupplied, the recharge circuit of the recharging circuit board quickly charges the rechargeable battery while preventing overcharging using a Pulse-Width-Modulation (PWM) circuit . However, in an analogous art, '994 teaches a solar cell power source device (Fig. 6) that when a Direct Current (DC) voltage (Vin) from the charging solar cells (10) is compared with a reference voltage by a Metal Oxide Semiconductor-Field Effect Transistor (MOS-FET) (T1), and the DC voltage corresponds to the battery voltage, the recharging circuit of the recharging circuit board (100) stores and filters the DC voltage through an inductor (L1) and a capacitor (C4), rectified the DC voltage into a battery voltage through a rectifying diode (D1), and thus, quickly charges the rechargeable battery (200) with the DC voltage from the charging solar cells (10); and when the DC voltage from the charging solar cells (10) is oversupplied, the recharge circuit of the recharging circuit board (100) quickly charges the rechargeable battery (200) while preventing overcharging using a Pulse-Width-Modulation (PWM) circuit (300)(Fig. 6; col. 2 line 49-col. 3 line 5). It further teaches that by using above circuitry the solar power source is capable to following up a maximum power point irrespective of the strength of the light

and ambient temperature. Therefore, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the chopper circuit (100) in battery pack of '002, as taught by '994, in order for the battery pack to have been capable to follow up a maximum power point irrespective of the strength of the light and ambient temperature, because '994 has demonstrated that it is a suitable method in order for the battery pack to have been capable to follow up a maximum power point by irrespective of the strength of the light and ambient temperature.

5. Claim 5, 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ono ('002), in view of Yoshino (US Patent No. 6,037,535, hereinafter '535).

Claim 5, 9, '002 teaches the limitations of claim 1 and 4 as discussed above. It does not explicitly teach that the light collecting projections of the charging solar cells (5) are formed to be protruded to enlarge a light collection area. However, in an analogous art, '535 teaches a sunlight collection apparatus (Abstract) which has plural light collection lens elements with hexagonal curved surface (Fig. 15, 16; col. 2 lines 22-37). It further teaches that each lens element is able to gather sunlight from a wide range of angles (col. 2 lines 22-37). Therefore, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have used plural hexagonal curved surfaces as the light collection lens elements in the solar battery pack of '002, as taught by '535, in order for the charging solar cell to have gathered sunlight from a wide range of angles, because '535 has demonstrated that it is a suitable method in order for a solar cell to have gathered sunlight from a wide range of angles by using plural hexagonal curved surfaces as the light collection lens elements in solar battery pack.

6. Claim 8,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono ('002), in view of Bachner et al. (US Patent No. 6,184,654, hereinafter '654).

Claim 8, 10, '002 teaches the limitations of claim 6 and 7 as discussed above. It does not explicitly teach that the device body is a body of a portable communication device. However, in an analogous art, '654 teaches a battery pack for cell phone using a solar cell with a circuitry to modify the output voltage in order to properly charge or save the device battery (col. 2, lines 37-46). Therefore, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the solar battery pack of '002 in the portable communication device of '654, as taught by '654, in order to have to properly charged or saved the device battery, because '654 has demonstrated that it is a suitable method in order to have charged or saved the device battery.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jue Zhang whose telephone number is 571-270-1263. The examiner can normally be reached on M-Th 7:30-5:00PM EST, Other F 7:30-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL CLEVELAND can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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